

## Should Very Old Patients Be Admitted to the Intensive Care Units?

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Dear Editor:

I read with great interest the article “Demographic Changes in Intensive Care Units in Korea over the Last Decade and Outcomes of Elderly Patients: A Single-Center Retrospective Study” published in the Korean Journal of Critical Care Medicine in May 2017 [1]. The results indicated that the proportion of inpatients aged 65–79 years admitted to an intensive care unit (ICU) increased from 47.9% in 2005 to 63.7% in 2014, and the proportion of ICU-hospitalized patients older than 80 years increased from 12.8% in 2005 to 20.7% in 2014. However, the overall mortality rate did not increase despite a higher mortality rate in the elderly than in the younger patients. These results are worthy and impressively demonstrate the recent changing trends in demographic data of ICU patients in Korea. However, I would like to comment on the following two points.

First, the authors might have shown a slightly lower sepsis prevalence, not greater than 1% for each subgroup in the ICU. The study conducted by Oh et al. [2], using the Health Insurance Review & Assessment Service database, revealed that the in-hospital mortality of patients with sepsis was as high as 38.9%, and the proportion of sepsis increased with age. In addition, in the United States, sepsis was ranked 11 in the top primary diagnoses in 1996 among patients older than 65 years who were admitted to the ICU, but in 2010, sepsis was ranked 1 among the primary diagnoses in older patients admitted to the ICU [3]. In Korea, where the proportion of elderly population is rapidly increasing, it is expected that the rate of primary diagnosis of sepsis in the elderly patients who are admitted to the ICU would be higher. It is considered to be a limitation due to single-center studies, and nationwide demographic studies of ICU patients are required.

Second, there had been questions regarding the appropriateness of ICU hospitalization of very old patients (VOPs) aged greater than 80 years with chronic illnesses. Roch et al. [4] reported that among patients older than 80 years, the ICU

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mortality rate was 46%, 1-year mortality rate was 72%, and 2-year mortality rate was 79%. The purpose of care for VOPs admitted to ICU might be just life-sustaining therapy rather than survival with highly qualified life. Increased long life-sustaining therapy might result in increased economic and emotional stress for patients, families, and medical costs. In addition, it will be difficult to properly operate in the ICU because of the prolonged length of stay of VOPs with chronic illnesses and the shortage of human resources for the other patients.

Nguyen et al. [5] suggested that the outcome of admission to the ICU of a VOP for postoperative care after an unplanned surgery or severe medical problems would be dismal, and recommended admission to a regular ward or acute care unit rather than ICU admission. However, there is a lack of legal backgrounds for doctors and VOPs with chronic illness to make advanced plans for the proper end of life care in Korea. There have been significant concerns about a new law on hospice and palliative care and withdrawal of life-sustaining therapy, which will be implemented in 2018 because it includes ambiguous or difficult provisions to be applied in medical reality [6]. Its improvement and supplement will be required. Additionally, advanced-care planning regarding ICU admission with patients or their families seems to improve the quality of life and satisfaction level and reduce related mental stress and depression. In these cases, we need to make an early and active palliative care consultation system after ICU admission to reduce life-sustaining therapy and decrease ICU length of stay [7,8].

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## The Authors Reply

We appreciate your interest in our paper and are thankful for taking the time to express your opinions. We would also like to thank you for the opportunity to clarify aspects of our methodology in relation to concerns on diagnostic criteria of the study patients and further express our opinions on the issue of elderly patients' intensive care unit (ICU) care.

As for the low proportion of sepsis, the article has a limitation. The Materials and Method section states that "The ICU patients with diagnoses associated with ICU mortality were classified into 10 subcategories. Diagno-